

DETAILED ACTION

Claim Objections

1. Claim 2 is objected to because of the following informalities: Claim 2 recites the limitation of "the operation-side journal portion of said drive-side plate cylinder" in line 9. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Kitai (Patent No.: US 6550383).

With respect to Claim 1, Kitai discloses in Fig. 1 and Column 5 Lines 1 – 3, 43 – 45 and 56 – 57:

a register adjusting mechanism for a split plate cylinder (PC) provided in a printing unit of a rotary press, said printing unit including a blanket cylinder (BC) disposed in contact with said split plate cylinder (PC), said split plate cylinder (PC) comprising a drive-side plate cylinder (PCb) and an operation-side plate cylinder (PCa)

each supported in an axially movable and circumferentially rotatable manner, said register adjusting mechanism comprising:

first (left 29) and second (right 29) axial register adjustment means operable to axially move said operation--side plate cylinder (PCa) and said drive--side plate cylinder (PCb), respectively, so as to adjust an axial register thereof independently; and

first (5) and second (4) circumferential register adjustment means operable to circumferentially rotate said drive-side plate cylinder (PCb) and said operation-side plate cylinder (PCa), respectively, so as to adjust a circumferential register thereof independently,

wherein:

said first axial register adjustment (left 29) means for said operation-side plate cylinder (PCa) and said second axial register adjustment (right 29) means for said drive-side plate cylinder (PCb) are disposed adjacent and connected to a journal of said operation--side plate cylinder (PCa) and a journal of said drive—side plate cylinder (PCb), respectively; and

at least one (4) of said first (5) and second (4) circumferential register adjustment means for said drive--side plate cylinder (PCb) and said operation--side plate cylinder (PCa) is disposed adjacent and connected to a journal of said blanket cylinder (BC).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3 – 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitai in view of Kusunoki (Pub. No.: US 2002/0023558).

With respect to Claim 3, Kitai discloses the limitations of Claim 3, as applied in Claim 1:

the register adjusting mechanism wherein:

said first axial register adjustment (left 29) means for said operation-side plate cylinder (PCa) is disposed adjacent and connected to an operation-side journal portion of said operation-side plate cylinder (PCa);

said second axial register adjustment (right 29) means for said drive--side plate cylinder (PCb) is disposed adjacent and connected to a drive-side journal portion of said drive-side plate cylinder (PCb);

said first circumferential register adjustment (5) means for said drive-side plate cylinder (PCb) is disposed adjacent and connected to a drive-side journal portion of said drive-side plate cylinder (PCb); and

said second circumferential register adjustment (4) means for said operation--side plate cylinder (PCa) is disposed adjacent and connected to an operation-side journal portion of said blanket cylinder (BC).

Kitai does not teach that the register adjusting mechanism wherein said drive--side plate cylinder of said split plate cylinder has a core portion fitted into a hollow cylinder portion of said operation--side plate cylinder.

However, Kusunoki teaches in Fig. 2 and [0035]: the register adjusting mechanism wherein said drive-side plate cylinder (PC₂) of said split plate cylinder (PC) has a core portion fitted into a hollow cylinder portion of said operation-side plate cylinder (PC₁).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention was made to modify Kitai's register adjusting system by using Kusunoki's design of the split cylinder for the purpose of increasing the strength of the split plate cylinder and preventing the generation of printing trouble to reduce the manufacturing cost.

This modification/combination meets all the limitations of Claim 3.

With respect to Claim 4, Kitai discloses the limitations of Claim 4, as applied in Claim 1, except for the details about the gearing arrangement included in the blanket cylinder.

However, Kusunoki teaches in the Fig. 3 and [0051]: the register adjusting mechanism (4), wherein: at least one of said first and second circumferential register

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adjustment (line 9) means which is connected to the journal of the blanket cylinder (BC) includes a gear member which has an outer peripheral surface provided with a spur gear (38), and an inner peripheral surface provided with an internal helical gear (6), wherein: said spur gear (38) of said gear member is engaged with a spur gear (41) provided in either one (J_1) of the journals of said drive-side plate cylinder and said operation-side plate cylinder (PC_1); and said internal helical gear (6) of said gear member is engaged with an external helical gear (7) provided in the journal of said blanket cylinder (BC).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention was made to modify Kitai's register adjusting system by using Kusunokii's design of the gearing arrangement for the purpose of increasing the strength of the split plate cylinder and preventing the generation of printing trouble to reduce the manufacturing cost.

This modification/combination meets all the limitations of Claim 4.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitai in view of Kusunoki applied above, and further in view of Tadashi (Patent No.: JP 06-270386).

With respect to Claim 2, the combination of Kitai and Kusunoki discloses the limitations of Claim 2:

the register adjusting mechanism wherein said drive-side plate cylinder of said split plate cylinder has a core portion fitted into a hollow cylinder portion of said operation-side plate cylinder, wherein:

said first axial register adjustment (left 29) means for said operation-side plate cylinder (PCa) is disposed adjacent and connected to an operation-side journal portion of said operation-side plate cylinder (PCa);

said first circumferential register adjustment (5) means for said drive-side plate cylinder (PCb) is disposed adjacent and connected to a drive-side journal portion of said drive-side plate cylinder (PCb); and

said second circumferential register adjustment (4) means for said operation-side plate cylinder (PCa) is disposed adjacent and connected to an operation-side journal portion of said blanket cylinder (BC).

The combination does not teach that the register adjusting mechanism wherein said drive-side plate cylinder of said split plate cylinder has an operation-side journal portion inserted into an operation-side journal portion of said operation-side plate cylinder to extend outside said operation-side journal portion of said operation-side plate cylinder, wherein: said second axial register adjustment means for said drive-side plate cylinder is disposed adjacent and connected to the operation-side journal portion of said drive-side plate cylinder.

However, Tadashi teaches in Fig. 1 and Abstract: the register adjusting mechanism wherein said B-side plate cylinder (3) of said split plate cylinder (1) has an

A-side journal portion (shaft 31) inserted into an A-side journal portion (the inner hole portion 33) of the A-side plate cylinder (5) to extend outside the A-side journal portion (the inner hole portion 33) of an A-side plate cylinder (5), wherein: the second axial register adjustment (74 – 76) means for the B-side plate cylinder (3) is disposed adjacent and connected to the A-side journal portion (shaft 31) of B-side plate cylinder (3).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention was made to modify the combination of Kitai and Kusunoki's register adjusting system by using Tadashi's design to move the second axial register adjustment to the operation-side and connect to the extension of the operation-side journal portion of drive-side plate cylinder for the purpose of simplifying the cylinder register adjusting system structure to decrease production cost.

This modification/combination meets all the limitations of Claim 2.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Reference of Fischer (Patent No.: US 5259310) discloses a gear member for adjusting the circumferential register.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yuan L. Chen whose telephone number is 571-270-

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3799. The examiner can normally be reached on Monday-Friday 7:30 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Yc

/Ren L Yan/
Primary Examiner, Art Unit 2854